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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,295	01/31/2002	Anthony A. Barretto	TI-33631	2055
23494	7590	01/29/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			NGUYEN, DONGHAI D	
			ART UNIT	PAPER NUMBER
			3729	4
DATE MAILED: 01/29/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/066,295

Applicant(s)

BARRETTO ET AL.

Examiner

Donghai D. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 9-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-8, drawn to a method of ensuring proper contact, classified in class 29, subclass 830.
  - II. Claims 9-18, drawn to an apparatus for lifting substrate, classified in class 29, subclass 743.
  - III. Claims 19-21, drawn to a system for applying solder bumps, classified in class 29, subclass 746.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions Group I and Groups II & III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another materially different apparatus that does not have a first or second actuators.

3. Inventions Group III and Group II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination

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as claimed because the combination as claimed does not require the substrate tray having a hole in each depression. The subcombination has separate utility such as lifting substrate in a semiconductor packaging process.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Groups II and III and vice versa, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Ira S. Matsil on January 20, 2004 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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***Drawings***

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "410" in Fig. 4. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

9. The abstract of the disclosure is objected to because the elected claimed invention is a method of ensuring proper contact, furthermore The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. Correction is required. See MPEP § 608.01(b).

10. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --A METHOD FOR ALIGNING SUBSTRATES IN A TRAY--.

***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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12. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "each protrusion going through a hole" (claim 1, line 7) is vague and indefinite since it is unclear as each protrusion goes through the same hole or not. Furthermore it is unclear as to "a hole" is the same or different from "a hole" previously recited in line 5

The phrase "the nozzles" (claim 1, line 11) lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,556,362 to Bahnck et al.

Regarding to claim 1, Bahnck et al disclose a method of ensuring proper contact between a plurality of substrates (12) and a lifting device (39) with a plurality of vacuum pads (113) wherein the substrates are placed one each in depressions in a substrate tray (21/31) and in each depression there is a hole (Fig. 3), the method comprising: raising a plate (62) with a plurality of protrusions (72/78) through the tray, with each protrusion going through a hole (Fig. 4); lowering the lifting device (39) onto the tray (Col. 7, line 49-51); stopping when the vacuum pads from the

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lifting device comes into contact with the substrates (Figs. 5-6); and applying a vacuum at the nozzles to temporarily attach the substrates to the nozzles (Fig. 7).

Regarding claims 2-6, Figs 2-7 show the protrusions on the plate are of sufficient height to lift the substrates up off the bottom of the tray and over the depressions in which they lay; the holes in the tray are sufficiently size to permit the protrusions to come through the bottom of the tray and small enough to prevent the substrates from falling through; and the step of raising the lifting device out of the tray after applying the vacuum (Abstract).

Regarding claim 7, Fig. 8 shows the protrusions (72) are arranged in a two-dimensional array on the plate.

### ***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1-8 are rejected under 35 U.S.C. 103(a) as obvious over US Patent 6,135,291 to Canella in view of Bahnck et al.

Regarding to claims 1 and 6, Canella discloses a method of ensuring proper contact between a plurality of substrates (100) and a lifting device (120) with a plurality of vacuum pads (Fig. 4) wherein the substrates are placed one each in depressions in a substrate tray (12) and in each depression there is a hole (Fig. 1), the method comprising: raising a plate (20) with a plurality of protrusions (30) through the tray, with each protrusion going through a hole (Figs. 1

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serial); lowering the lifting device (120) onto the tray (Fig. 4); Canella is silent in the step of how the lift device operates; however Bahnck et al disclose the steps of stopping when the vacuum pads from the lifting device comes into contact with the substrates and applying a vacuum at the nozzles to temporarily attach the substrates to the nozzles for transferring or lifting substrates off the tray (see Figs. 3-7 and Abstract lines 10-21).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Canella to have the steps of stopping when the vacuum pads from the lifting device comes into contact with the substrates and applying a vacuum at the nozzles to temporarily attach the substrates to the nozzles as taught by Bahnck et al for transferring or lifting substrates off the tray (see Figs. 3-7 and Abstract lines 10-21).

Regarding claims 2-5, Figs 1, 1A and 1B, show the protrusions on the plate are of sufficient height to lift the substrates up off the bottom of the tray and over the depressions in which they lay; the holes in the tray are sufficiently size to permit the protrusions to come through the bottom of the tray and small enough to prevent the substrates from falling through.

Regarding claims 7 and 8, see Figs. 2, 5 and 6.

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



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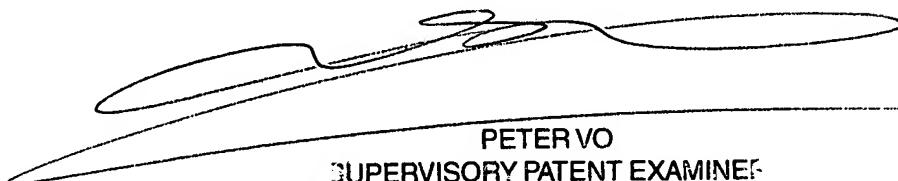
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghai D. Nguyen whose telephone number is (703) 305-7859.

The examiner can normally be reached on Monday-Friday (9:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

DN

A handwritten signature in black ink, appearing to read 'PETER VO', is written over a horizontal line.

PETER VO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700